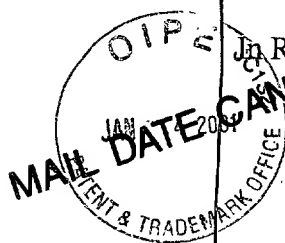


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IN THE UNITED STATES PATENT AND TRADEMARKS OFFICE



In Re the application of:

Applicant: FRANCESCO A. CRUPI
Serial No.: 09/592,773
Filed: June 13, 2000
Title: ASPHALT RAKE WITH RIDE UP CAPABILITY
Attorney Docket No.: 50063.0000-3
Examiner: A. Pechhold
Art Unit: 3673

AMENDMENT

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JAN 11 2002
GROUP 3600

To: The Assistant Commissioner for Patents
Box Non-Fee Amendments
Washington, DC 20231
U.S.A.

Date: November 9, 2001

Dear Sir/Madam:

This is in response to the Examiner's action dated August 9, 2001 in the above case.

Please amend the application as follows:

In the Claims

Please rewrite Claim 1 as follows:

A1 1. (amended) A raking device for breaking up a surface, said raking device comprising:


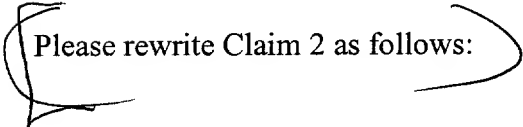
a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of travel of said raking device;

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X

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase.

A/  Please rewrite Claim 2 as follows: 

2. (amended) A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase;

A1

said rake frame support including at least one linkage member pivotally connected to said rake frame and to said rake frame carrier;

said force applicator including a fluid pressure responsive piston slidably received within a bore and connected to said linkage member to apply said downward force in response to fluid pressure within said bore;

each said rake including a downwardly depending spring secured at a frame end to said rake frame and a rake tip secured to said rake spring at a tip end of said rake spring distal said frame end; and,

wherein said frame end leads said tip when said rake is in an operative position.

REMARKS

The Examiner has rejected Claims 1-19 as being indefinite. In particular, the Examiner states that the limitation "said rake" in line 10 has insufficient antecedent basis. Applicant respectfully points out that Claim 1 refers to "said rakes" for which antecedent

basis is found in the expression "plurality of rakes." Applicant has nevertheless amended Claim 1 as suggested by the Examiner to recite "a plurality of rakes" in line 10.

The expression "rake from carrier" has been replaced with "rake frame carrier structure" to both correct a typographical error and to be consistent with the previously introduced structure.

Applicant acknowledges with thanks the Examiner's indication that Claims 2-19 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 set forth in the office action and to include limitations of the base claim and the intervening claims. The above amendments so amend Claim 2 from which the remaining claims depend. Accordingly, with the above amendment, Claims 2-19 are allowable.

The Examiner states that Claim 1 is anticipated by Scott (U.S. 5,265,975). The Examiner makes reference to "intended use recitations in Claim 1" and states that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. The Examiner has not clarified what is meant by "intended use recitations" and it is not apparent to Applicant to what the Examiner is referring. Claim 1 does include functional limitations which must be satisfied by some of the structure; this, however, is different from "intended use recitations."

An important feature of the present invention is its "ride up" capability which enables the rakes to exert a substantially constant downwardly directed force rather than being locked in position, thereby enabling the rakes to respond to obstructions by riding up over those obstructions. In order to accomplish this, two things are required. Firstly, the rakes must be mounted in such a way to produce an upwardly directed resultant in

force in response to a horizontally directed force arising from encountering an obstruction in the path of travel of the raking device. This functional limitation is clearly set forth in Claim 1. In a preferred embodiment of the invention, this may be achieved by the manner in which the rakes are mounted to the frame using springs.

Scott would not be capable of producing such a resultant force. If the tips 3 of the teeth 2 in Scott were to encounter an obstruction, a horizontally directed force rather than a vertically directed force would be produced in cylinder 19-a. And no force would be produced in the cylinders 12a and 12b which the Examiner refers to as a force applicator.

The second feature of Applicant's invention which enables the ride up capability is the ability of the hydraulic system to respond to an upwardly directed force above a pre-set amount to enable the rakes to move upwardly once this force has been exceeded. In other words, once the rakes encounter an object, an upwardly directed force is produced which exceeds the force to which the rakes are ordinarily subject in order to scarify the underlying surface. The force applicator reacts to the increased force and rather than locking the rakes in place, allows the rakes to ride up.

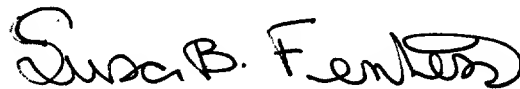
In at least the preferred embodiment of the invention, the force applicator includes fluid pressure responsive pistons slidably received within a bore and a fluid pressure supply system with a fluid pressure bleed passage through which a portion of the pressurized fluid is continually bled off at a flow rate determined by a pressure.

Scott simply fails to teach an apparatus which has a force applicator which responds to an increase in upwardly directed force. As Scott does not produce the upwardly directed force in the first place, there would be no reason for Scott to have such a system. There is nothing to suggest that Scott utilizes anything but a conventional

hydraulic system in which a valve blocks flow out of the hydraulic cylinder once a predetermined amount of extension is obtained. Such a system would in effect lock the rakes rather than allow for an upward movement.

For the reasons set out above, Applicant respectfully traverses the Examiner's rejection of Claim 1 when 35 U.S.C.(b) as being anticipated by Scott and requests that the Examiner reconsider and withdraw his rejection with a view toward allowing Claim 1. Applicant respectfully submits that the application as amended is in condition for allowance and action towards that goal is respectfully requested.

Respectfully Submitted,



Susan B. Fentress
for the Applicant

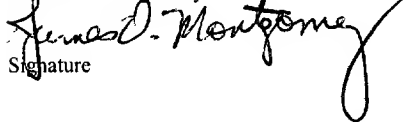
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"Express Mail" mailing label number: EK7635442005

Date of Deposit: 11/9/2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to The Assistant Commissioner for Patents, Box Non-Fee Amendments, Washington, D.C., 20231.

James D. Montgomery


Signature

APPENDIX A

Marked Up Version of Amended Claims Pursuant to 37 C.F.R. §1.121c(I)(ii)

1. (amended) A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction path in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake [from] frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase.

2. (amended) [A raking device as claimed in claim 1 wherein:]

A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase[.];

said rake frame support [includes] including at least one linkage member pivotally connected to said rake frame and to said rake frame carrier;

said force applicator [includes] including a fluid pressure responsive piston slidably received within a bore and connected to said linkage member to apply said downward force in response to fluid pressure within said bore;

each said rake [includes] including a downwardly depending spring secured at a frame end of said rake frame and a rake tip secured to said rake spring at a tip end of said rake spring distal said frame end; and,

Clean Version of Entire Set of Pending Claims
Pursuant to 37 C.F.R. 1.121(c)(3)

1. A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of travel of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase.

2. A raking device for breaking up a surface, said raking device comprising:

a plurality of rakes mounted on a rake frame and arranged to produce an upwardly directed resultant force in response to a horizontally directed force arising from encountering an obstruction in a path of said raking device;

a rake frame support mounting said rake frame to a rake frame carrier structure and allowing controlled movement of said rakes in a vertical direction;

a force applicator acting between said rake frame carrier structure and said rake frame support for applying at least a downward force to said plurality of rakes, said force applicator being responsive to an increase in said upwardly directed resultant force above a preset amount to allow said plurality of rakes to move upwardly in response to said increase;

said rake frame support including at least one linkage member pivotally connected to said rake frame and to said rake frame carrier;

said force applicator including a fluid pressure responsive piston slidably received within a bore and connected to said linkage member to apply said downward force in response to fluid pressure within said bore;

each said rake including a downwardly depending spring secured at a frame end to said rake frame and a rake tip secured to said rake spring at tip end of said rake spring distal said frame end; and,

wherein said frame end leads said tip when said rake is in an operative position.

3. A raking device as claimed in claim 2 further comprising:

a fluid pressure supply system fluidly communicating with said bore through a first fluid conduit for supplying said pressurized fluid at a predetermined pressure and flow rate to said bore to act on a first face of said piston to cause said piston to exert said downward force;

said fluid pressure supply system including a fluid pressure bleed passage through which a portion of said pressurized fluid being supplied through said first fluid conduit to said bore is continually bled off at a volume flow rate determined by the pressure of said pressurized fluids, said fluid pressure bleed passage allowing an increase in said volume flow rate therethrough in response to an increase in pressure as would be occasioned by said piston being responding to an increase in said resultant force exerted by said rakes to enable said rakes to move upwardly in response to an increase in said horizontally directed force.

4. A raking device as claimed in claim 3 wherein:

said fluid pressure supply system includes a fluid reservoir, a fluid pump and a pressure reducing valve;

said fluid pump has an inlet in fluid communication with said fluid reservoir for receiving fluid from said fluid reservoir;

said fluid pump has an outlet for supplying pressurized fluid to said fluid pressure supply system;

said pressure reducing valve is interspersed between said pump and said first fluid conduit to control fluid pressure in said first fluid conduit;

said bleed passage has a flow restrictive orifice therein; and,

said bleed passage discharges bled off fluid into said fluid reservoir.

5. A raking device as claimed in claim 4 wherein:

said fluid pressure supply system includes a second fluid conduit for supplying pressurized fluid to a second face of said piston opposite said first face, to cause said piston to exert an opposite force on said linkage member to move said rakes upwardly and a control valve to selectively direct said pressurized fluid between said first and second conduits.

6. A raking device as claimed in claim 5 wherein:

said pressure reducing valve includes a free flow bypass; and,

said control valve is a three position four way closed center valve.

7. A raking device as claimed in claim 6 wherein:

said fluid is hydraulic oil.

8. A raking device as claimed in claim 2 having a plurality of said rake frames and wherein said rake frames are pivotally mounted to allow rocking of said rake frame about a horizontal axis generally parallel to said path of travel.

9. A raking device as claimed in claim 8 wherein:

said rake frame is pivotable about said axis to a position of about 10 degrees from the horizontal to either side.

10. A raking device as claimed in claim 9 wherein:

said rake frame support is a parallel bar linkage including at least two laterally extending generally parallel bars pivotably connected, one above the other, to said rake frame at one end and to said rake frame carrier at an opposite end.

11. A raking device as claimed in claim 9 wherein:

said linkage member is a bell crank having a first end pivotably connected to said rake frame, a second end opposite said first end pivotably connected to said force applicator, said bell crank being pivotably connected between said first and second ends to said rake frame carrier.

12. A raking device as claimed in claim 4 having a plurality of said rake frames and wherein said rake frames are pivotally mounted to allow rocking of said rake frame about a horizontal axis generally parallel to said path of travel.

13. A raking device as claimed in claim 12 wherein:

said rake frame is pivotable about said axis to a position of about 10 degrees from the horizontal to either side.

14. A raking device as claimed in claim 13 wherein:

said rake frame support is a parallel bar linkage having at least two laterally extending generally parallel bars pivotably connected, one above the other, to said rake frame at one end and to said rake frame carrier at an opposite end.

15. A raking device as claimed in claim 14 wherein:

said linkage member is a bell crank having a first end pivotably connected to said rake frame, a second end opposite said first end pivotably connected to said force applicator, said bell crank being pivotably connected between said first and second ends to said rake frame carrier.

16. A raking device as claimed in claim 7 having a plurality of said rake frames and wherein said rake frames are pivotally mounted to allow rocking of said rake frame about a horizontal axis generally parallel to said path of travel.

17. A raking device as claimed in claim 16 wherein:

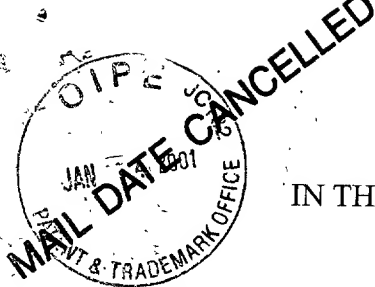
said rake frame is pivotable about said axis to a position of about 10 degrees from the horizontal to either side.

18. A raking device as claimed in claim 17 wherein:

said rake frame support is a parallel bar linkage including at least two laterally extending generally parallel bars pivotably connected, one above the other, to said rake frame at one end and to said rake frame carrier at an opposite end.

19. A raking device as claimed in claim 18 wherein:

said linkage member is a bell crank having a first end pivotably connected to said rake frame, a second end opposite said first end pivotably connected to said force applicator, said bell crank being pivotably connected between said first and second ends to said rake frame carrier.



01-CA-038

G/P 3673

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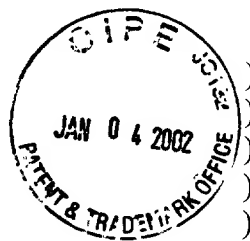
Re the Application of:

Francesco A. Crupi

Serial No.: 09/592,773

Filed: June 13, 2000

For: ASPHALT RAKE WITH RIDE UP
CAPABILITY



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JAN 11 2002
GROUP 3600

Attorney Docket No.: 50006-0000-3

TRANSMITTAL LETTER

Box Non-Fee Amendments
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The following documents for the above-captioned application are enclosed herewith:

1. Amendment;
2. Return Postcard; and
3. Certificate of Express Mail.

Respectfully Submitted,

BUTLER, SNOW, O'MARA, STEVENS &
CANNADA, PLLC

By: Susan B. Fentress
Susan B. Fentress
Reg. No. 31,327

Nov 9, 2001
Date

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James D. Montgomery
James D. Montgomery

[Handwritten mark]